A" produced by Daiso Co., Ltd.) was dissolved in 300 ml of carbon tetrachloride. 30 ml of bromine was added dropwise to the solution over 1 hour with stirring at 5°C or less. The resulting solution was put in 1,000 g of methanol, in which 0.1 g of hydroquinone had been dissolved, to obtain an adduct of a diallylorthophthalate prepolymer and bromine deposited as a reaction product.

(2) 2.5 g of the reaction product, 2.5 g of neopentyl glycol diacrylate ("NK Ester A-NPG" produced by Shin-Nakamura Chemical Co., Ltd.), 1.75 g of 3,3'4,4'-tetra(tert-butylperoxycarbonyl)benzophenone ("BTTB-25" produced by NOF Corporation), 0.005 g of 3,3'-carbonylbis(7-(diethylamino)coumarin) ("BC" produced by Midori Kagaku Co., Ltd.), and 4 g of acetone were mixed at an ordinary temperature to prepare a recording material composition comprising these components.

(3) to (5) A hologram was obtained by conducting the same procedures as in items (2) to (4) of Example 38.

The resulting hologram could be recorded with an exposure light amount of 50, 100 and 150 mJ/cm^2, and exhibited a diffraction efficiency of about 30%.

In Examples 27 to 42, no operation of development or fixing was necessary. Because the recording layer was sandwiched by the two glass plates, the thickness of the recording layer was uniform after exposure. There was no unevenness between a portion that had been irradiated with light of a high intensity and a portion that had been irradiated with light of a low intensity, and the record was formed with a refractive index

modulation. A transparent hologram having a high brightness and substantially no absorption in the visible region was thus obtained. A stable image was maintained after removing the protective material.

Example 43

8.5 g of diallylorthophthalate prepolymer ("Daiso DAP Type A" produced by Daiso Co., Ltd.), 10 g of ethylene glycol dimethacrylate ("NK Ester 1G" produced by Shin-Nakamura Chemical Co., Ltd.), 1.5 g of polyarylate ("U-100" produced by Unitika Ltd.) as a solvent-soluble thermoplastic resin, 0.6 g of benzil as a polymerization initiator, 0.2 g of Michler's ketone as a photo-sensitizing dye and 20 g of dichloromethane were mixed at an ordinary temperature to prepare a recording material composition comprising these components.

(2) to (4) A photosensitive plate for recording a hologram was produced and a hologram was copied by conducting the same manner as in items (2) to (4) of Example 1.

A copy thus obtained suffered no coloring, and had a high brightness of diffraction efficiency of about 35% conducting development and fixing.

Example 44

The same procedures as in Example 43 were repeated, except that 1.5 g of polysulfone ("Udel P-1700" produced by Amoco Polymers Inc.) as solvent-soluble thermoplastic resin was used, to produce recording material composition and a photosensitive plate for recording hologram on which a hologram was copied.

A copy thus obtained suffered no coloring, and had a high brightness of diffraction efficiency of about 35% conducting development and fixing.

Example 45

(1) 5 g of diallyl orthophthalate prepolymer ("Daiso DAP, DAPA" produced by Daiso Co., Ltd.) as an allyl-based prepolymer (A), 1 g of an acrylic acid adduct of 9, 9-bis(4-hydroxyphenyl)fluorene glycidyl ether ("ASF400" produced by Nippon Steel Chemical Co., Ltd.) as a radical polymerizable compound (b1), 3.5 g of 3, 3', 4, 4'-tetra(tert-butylperoxycarbonyl)benzophenone ("BTTB-25" produced by NOF Corporation) as a photopolymerization initiator, 0.01 g of a merocyanine-based dye ("NK4795" produced by Nippon Photosensitizing Dye Co., Ltd.) as a sensitizing dye, 4 g of diethyl sebacate ("SDE" produced by Wako Pure Chemical Co., Ltd.) as a viscosity reducing agent (e1) and 6 g of acetone as a solvent were mixed at an ordinary temperature to prepare a recording material composition.

(2) The composition was coated on one surface of a glass plate substrate having a dimension of 60 mm×60 mm to a thickness of 20 μm after drying. The solvent was removed from the coated layer under reduced pressure, to produce a recording medium having a two-layer structure comprising the substrate and the recording layer.

(3) The same glass plate as mentioned above was placed to cover the recording layer of this recording medium, to produce a three-layer photosensitive plate for recording a hologram.

(4) An Ar ion laser of 488 nm was split with a beam splitter, angles of each light were changed with a reflector, and both were recomposed to form interference to obtain an interference fringe. The photosensitive plate was placed at a position where this interference fringe